



Checkpoint I: Project Proposal

Group: G10

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Domain

The domain of the visualization is forex trading, specifically the analysis and correlation of forex price movements with fundamental news, sentiment and technical indicators.

Forex trading, the global marketplace for currency exchange, witnesses vast fluctuations influenced by a combination of market speculation, economic indicators, and world events. We will focus on the major forex pairs, comprising EUR/USD, USD/JPY, GBP/USD, USD/CHF, AUD/USD, USD/CAD and NZD/USD, encapsulating the primary movements in this vast landscape.

For an effective analysis, traders often blend price movement observations across various timeframes with technical indicators - tools that predict future price levels or the general price direction. These methods, while robust, gain another layer of depth when compared with fundamental news - scheduled economic announcements and reports.

This project aims to craft an integrative visualization for the seven major forex pairs. By concurrently mapping price trajectories, key technical markers, and significant fundamental news events, we aspire to offer a comprehensive snapshot that captures the multifaceted nature of forex trading dynamics.

Dataset Description

Our primary dataset, capturing the price movements of the seven major forex pairs—EUR/USD, USD/JPY, GBP/USD, USD/CHF, AUD/USD, USD/CAD, and NZD/USD—will be sourced from trusted and comprehensive databases. Platforms such as [Quandl](#), [Investing.com](#), and notably [Dukascopy](#), renowned for its high-quality data, will be pivotal in this collection. This data will encapsulate essential metrics like the date, time, open, high, low, close prices, and the volume for a diverse range of timeframes, from daily to hourly breakdowns.

For the technical indicators, our approach will be grounded in precision and customizability. Instead of relying on pre-packaged datasets, we will employ Python, leveraging its powerful libraries, to import the forex price data. Upon importing, we will enhance the dataset by calculating and appending a range of technical indicators directly to our dataframe. This approach ensures that the indicators, which may include tools such as Moving Averages, Relative Strength Index (RSI), and Bollinger Bands, are tailored to our specific analytical requirements and are in congruence with our price data.

Our exploration of the forex landscape would be incomplete without integrating the crucial dimension of fundamental news. To provide this layer of depth, we will harness historical data from forex-centric economic calendars, with [ForexFactory](#) and [Investing.com](#) being our primary aggregators. The data derived from these platforms will offer insights into the date and time of the news, the specific currency affected, the nature of the news event, the market's expectation, the actual outcome, and its potential or realized impact on the market.

While the forex price and technical indicators will be methodically structured, sourcing fundamental news data might present challenges due to its varied nature, potentially necessitating web scraping and occasional manual intervention. Given the diverse origins of our data, cleaning and normalization will be crucial to maintain its accuracy and uniformity.

Example Questions

1. Interactive Exploration of Price Movements: As users interact with the candle bar chart, how effectively can they discern patterns in OHLC prices over specific timeframes? Can they intuitively identify potential cyclical patterns or anomalies in price action, especially around key fundamental news releases?
2. Price Movement Correlation with News: How does the release of specific fundamental news events, such as non-farm payrolls or central bank announcements, correlate with sharp price movements in the major forex pairs?
3. Comparison Across Major Pairs: How do specific news events or economic indicators impact different major forex pairs? For instance, does an interest rate hike by the Federal Reserve have a uniform effect on EUR/USD, GBP/USD, and AUD/USD?
4. Technical Indicators and Price Trends: During periods of sustained uptrends or downtrends in a currency pair, which technical indicators provided the most accurate signals or forecasts?
5. Effectiveness of Technical Indicators: During major news releases, how do technical indicators behave? Are they overshadowed by the fundamental news, or do they offer valuable insights during such high-volatility periods?

Data Sample

1. Forex Price Movements (from [Dukascopy](#) or equivalent): For the purpose of detailed analysis, we'll have separate datasets for each of the major forex pairs, offering minute-by-minute granularity. An example for USD/JPY would be

```
Date,Time,Open,High,Low,Close,Volume
2020-01-01,09:00:00,109.55,109.80,109.30,109.65,6700
2020-01-01,09:01:00,109.65,109.90,109.45,109.75,6900
```

2. Technical Indicators (calculated using Python): For each major forex pair, we'll have a separate dataset to ensure precise tracking and analysis. An example for USD/JPY's technical indicators would be

```
Date,RSI(14),Moving Average(20),Moving Average(50),Bollinger Upper,Bollinger Lower
2020-01-01,55.75,109.57,109.60,110.20,109.00
2020-01-02,57.20,109.61,109.63,110.23,109.03
```

3. Fundamental News (from [ForexFactory](#) or equivalent): An example would be

```
Date,Time,Event,Impact
2020-01-01,08:30,Non-Farm Employment Change,High
2020-01-02,12:00,German Manufacturing PMI,Medium
```